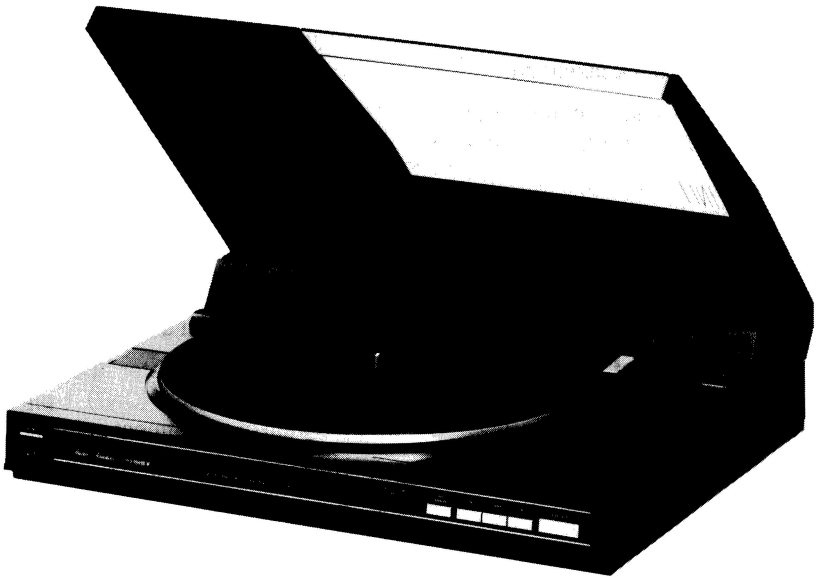
# SERVICE MANUAL

# FISHER

## FULL-AUTOMATIC LINEAR TRACKING TURNTABLE

## MT-885R
**(EUROPE)**



134 092 45

## SPECIFICATIONS

| | |
|---|---|
| Motor | DC Servo |
| Drive System | Belt |
| Wow and Flutter (WRMS) | 0.065 % |
| Rumble(DIN 45539B) | −70 dB |
| Speed Variation | ±0.5 % |
| Platter Diameter | 298 mm |
| Platter Weight (With Mat) | 0.5 kg |
| Record Speed Selector | 33-1/3 rpm / 45 rpm |
| Automatic Functions | |
| Start | Yes |
| Stop | Yes |
| Reject | Yes |
| Repeat | Yes |
| Automatic Tonearm Return at End of Record | Yes |
| Manual Functions | |
| Start | Yes |
| Stop | Yes |
| Tonearm Data | |
| Resonance | <18 Hz |
| Effective Length | 130 mm |
| Shape | Straight |
| Max. Tracking Error | ±0.2° |
| Cueing | Viscous Damped |
| **GENERAL** | |
| Power Requirements (50 Hz) | AC 110 V/220 V |
| Power Consumption | 10 Watts |
| Dimentions (W x H x D) | 440 mm x 96 mm x 360 mm |
| Weight (approx) | 3.6 kg |

**– Specifications subject to change without notice. –**

**REFERENCE No. WM-19658**

# ADJUSTMENTS

## BEFORE ATTEMPTING ADJUSTMENT

1. Adjustments through the rear of the cabinet should be carried out from the bottom with the cabinet placed firmly on a level base.
2. Carry out adjustment procedures in the order given here.

## MEASURING INSTRUMENTS REQUIRED

- Stroboscope Sheet
- Standard reflective plate
- DC VTVM (DC voltmeter with high impedance)
- Screw driver

## STYLUS HEIGHT ADJUSTMENT

1. Remove the turntable mat and belt and turn the power on.
2. Press the ◁ button and move the tone arm so that the stylus height adjustment screw can be seen in the turntable aperture (see Figure 1).
3. Turn the adjustment screw so that the stylus height is 7.5mm from the turntable (it is best to use some instrument like that depicted in Figure 2).

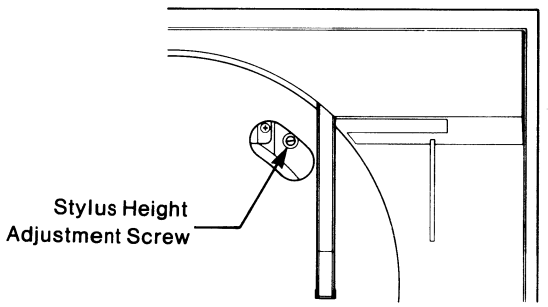



**Figure 1**

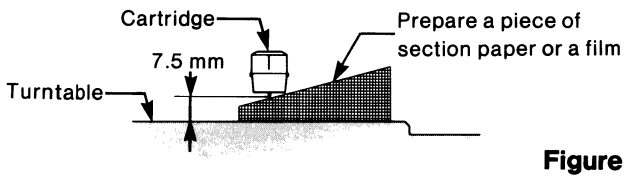



**Figure 2**

## ROTATION ADJUSTMENT

1. Replace the belt and turntable mat and set the SPEED switch to 45 rpm.
2. Using a stroboscope sheet, adjust VR5 on the Control PCB so that the rotation matches up (see Figure 3).
3. Set the SPEED switch to 33 rpm and carry out the same procedure with VR4.

**NOTE:**
Always carry out this adjustment by adjusting the 45 rpm speed first.

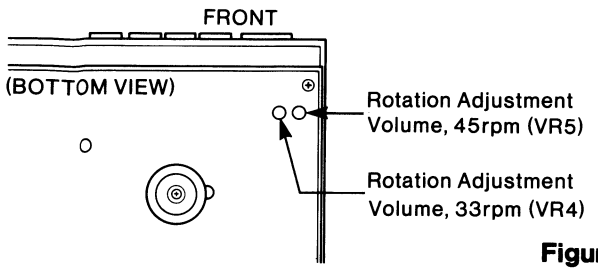



**Figure 3**

## ARM FEED PHOTOINTERRUPTER SENSITIVITY ADJUSTMENT

1. Place a minimally de-centered record disk on the turntable and play.
2. When the turntable has completed at least 5 revolutions after the needle has dropped onto the record, press the CUEING button, lifting the tone arm.
3. At this point, adjust VR3 on the Control PCB so that the arm rises straight up (see Figure 4).

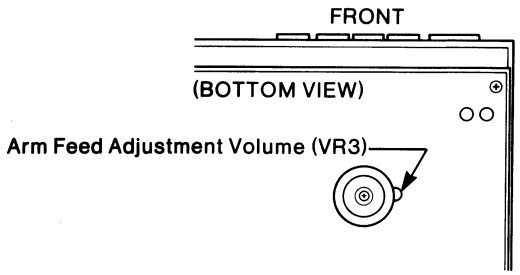



**Figure 4**

## TRACK SENSOR SENSITIVITY ADJUSTMENT

1. Remove the unit's rear cover.
2. Connect a voltmeter (DC VTVM) to the Control PCB 3P adjustment plug's (CN7) 1 pin and 3 pin(GND) (refer to the diagram of adjustment points).
3. Remove the turntable belt and lift the turntable mat.
4. Place the standard reflective plate halfway between the turntable shaft and the edge of the turntable.
5. Turn the power on. After 15 seconds, maneuver the tone arm into position over the standard reflective plate using the ◁ button.
6. At this point, adjust VR1 on the Control PCB so that the voltmeter reads 3.8V. (In the event that you are unable to make this adjustment, remove the 100 kΩ R5 resistor between the Control PCB's IC3 pins 8 and 9 and then carry out adjustment).

**NOTE:**
Because the track sensor makes use of infrared light rays, avoid carrying out this adjustment in the vicinity of other infrared light ray sources, such as solar rays and incandescent lights. (Fluorescent lights do not affect this adjustment.

## LEAD-IN ADJUSTMENT

1. Place a record on the turntable and press the PLAY/STOP button to begin lead-in.
2. Turn the adjustment cam so that lead-in attains the proper position (see Figure 5). (Rotating the cam clockwise moves the lead-in in toward the center, while rotating it counter-clockwise moves it out towards the edge.)

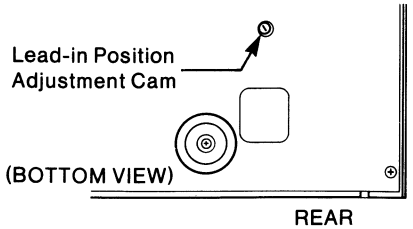



**Figure 5**

# ADJUSTMENTS (Continued)

## APPROACH ADJUSTMENT

1. Set the Approach control to the center click position.
2. Place a record containing several selections on the turntable.
3. Once bring the end of GND wire into touch with the 1 pin of the remote control jack(J1) on the back of the unit to activate lead-in by means of the remote control signal (see Figure 6).
4. Afer play of the first selection has begun, bring the end of GND wire into touch with the 1 pin again and move on to the next selection.
5. At this point, make sure that the entire selection is being played, with neither the beginning nor the end of the selection being cut off.
6. In the event that either the beginning or the end of the selection is being cut off, adjust VR2 on the Control PCB (see Figure 7).
7. Carry out this procedure several times to make sure this function is working properly.

**NOTE:**
If you have a pair of amplifiers available when carrying out this adjustment (the CA-874), you can also operate the song selection from the amplifier remote control by connection of the amplifier remote control terminals.

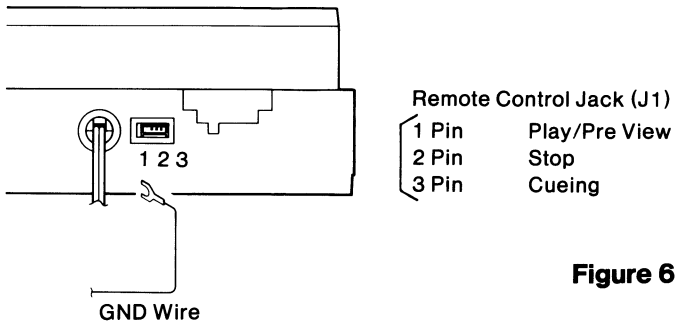



**Figure 6**

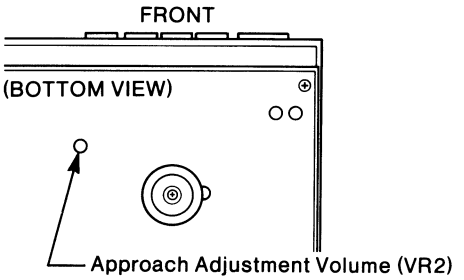
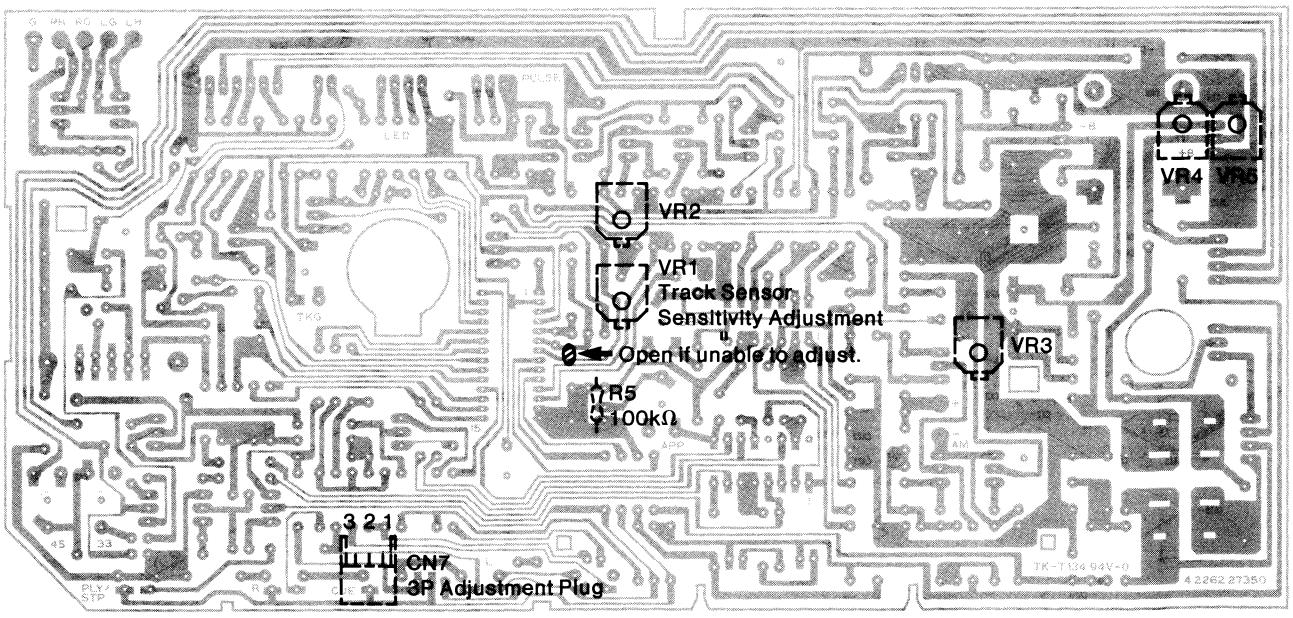
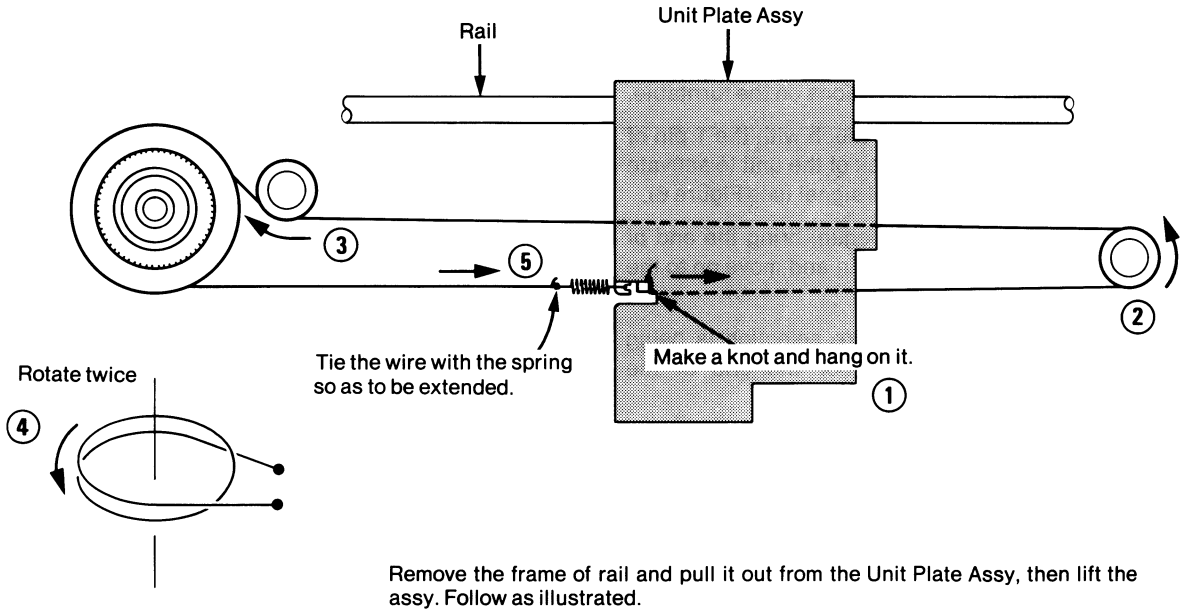



**Figure 7**

# CONTROL P.C.BOARD ADJUSTMENT POINTS
## (BOTTOM VIEW)

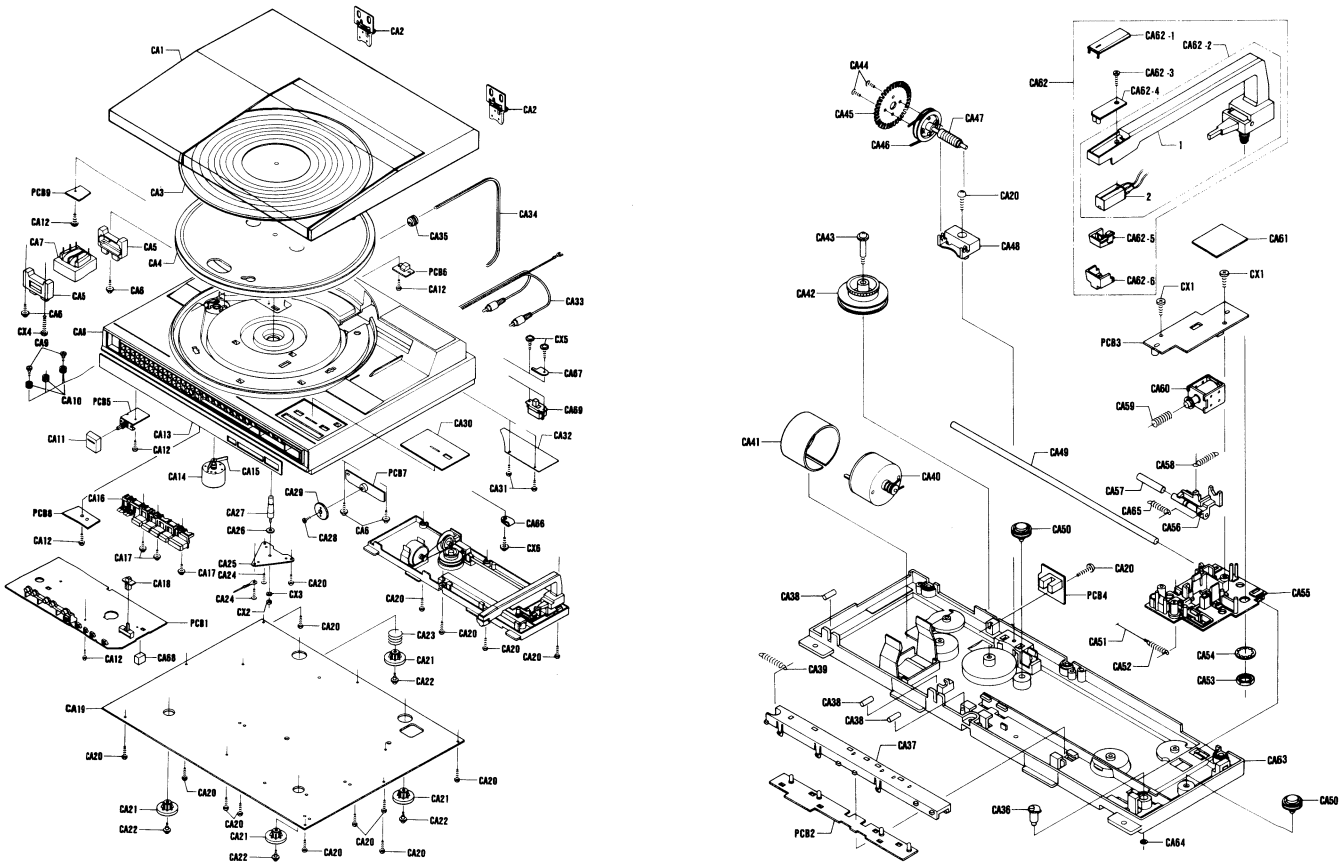


# ARM FEED CORD STRINGING




Remove the frame of rail and pull it out from the Unit Plate Assy, then lift the assy. Follow as illustrated.

# CABINET & CHASSIS EXPLODED VIEW



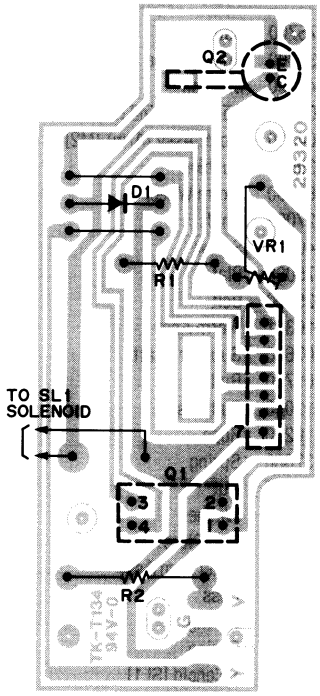
# CABINET & CHASSIS PARTS LIST

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| | **PACKAGE** | | |
| | 131-6-3069-17050 | Patching Sheet | 2 |
| | 131-6-9439-00400 | Ribbon | 2 |
| | 134-2-2104-12700 | Screw Transit | 1 |
| | 141-6-1139-98329 | Box Corrugate-exp | 1 |
| | 141-6-2519-19490 | Bag Polyethylene-exp | 1 |
| | 141-6-2519-20990 | Bag Polyethylene-exp | 1 |
| | 141-6-3119-23401 | Pad | 1 |
| | 141-6-3119-24900 | Pad Front | 1 |
| | 141-6-3119-25000 | Pad Rear | 1 |
| | 141-6-3119-25100 | Pad | 1 |
| | 141-6-3119-32200 | Pad | 1 |
| | 141-6-3119-33200 | Pad | 1 |
| | 141-6-3319-13200 | Spacer | 3 |
| | 141-6-4159-00639 | Notes | 1 |
| | 141-6-4559-04035 | Serial No. Sheet | 2 |
| | **ACCESSORIES** | | |
| | 4-2359-79333 | Connector 3P Assy | 1 |
| | 131-6-2719-10401 | Bag Fan | 1 |
| | 134-2-2901-11601 | Adapter EP | 1 |
| | 142-6-4119-33390 | Explanatory Booklet | 1 |
| | **CABINET** | | |
| | 131-2-1310-34671 | Name Plate | 1 |
| | 131-2-7103-46801 | Label | 1 |
| | 141-2-4419-24600 | Cloth | 1 |
| | 141-6-4559-04035 | Serial No. Sheet | 1 |
| | 141-6-4729-37695 | Label | 1 |
| | 4-2359-79183 | Connector 4P Assy [CN5] | 1 |
| | 4-2359-79252 | Connector 3P Assy [CN6] | 1 |
| CA1 | 141-0-1249-30600 | Lid Assy | 1 |
| CA2 | 141-0-2519-00902 | Hinge Assy | 2 |
| CA3 | 141-2-4429-00100 | Mat Turntable | 1 |
| CA4 | 141-2-5229-01002 | Turntable | 1 |
| CA5 | 141-2-4459-34400 | Cushion | 2 |
| CA6 | 131-2-4201-28202 | Screw | 4 |
| CA7 | ⚠ 4-2512-30521 | Power Trans | 1 |
| CA8 | 141-2-1129-43000 | Cabinet | 1 |
| CA9 | 134-2-4201-13600 | Screw | 2 |
| CA10 | 134-2-5202-11800 | Rubber Cushion | 3 |
| CA11 | 131-2-1601-85210 | Knob Power | 1 |
| CA12 | 131-2-4201-19501 | Screw, Button Hd. Tapping | 5 |
| CA13 | 141-2-1449-73006 | Plate Control | 1 |
| CA14 | 134-0-5011-04200 | Motor Assy (Phono) [M1] | 1 |
| CA15 | 134-2-6302-11601 | Belt | 1 |
| CA16 | 141-0-1619-36200 | Knob Assy | 1 |
| CA17 | 131-2-4201-25200 | Screw, Brazier Hd. Tapping, +M3.0x6 | 3 |
| CA18 | 141-2-1649-38800 | Knob | 1 |
| CA19 | 141-2-1259-10200 | Plate Bottom | 1 |
| CA20 | 131-2-4201-19503 | Screw, Button Hd. Tapping | 17 |
| CA21 | 141-2-4459-36500 | Cushion | 4 |
| CA22 | 134-2-4201-13400 | Screw | 4 |
| CA23 | 141-2-8559-06505 | Spring Mounting | 1 |
| CA24 | 131-2-4201-23703 | Screw | 2 |
| CA25 | 141-2-3519-80000 | Plate Shaft Turntable | 1 |
| CA26 | 141-2-4569-09900 | Washer | 2 |
| CA27 | 141-0-7519-04601 | Shaft Turntable Complet | 1 |
| CA28 | 131-2-4201-24600 | Screw | 1 |
| CA29 | 131-2-1601-59501 | Knob | 1 |
| CA30 | 141-2-1449-72901 | Plate Control | 1 |
| CA31 | 131-2-4201-20801 | Screw +M2.6 x 8 | 2 |
| CA32 | 141-2-1149-51900 | Cover | 1 |
| CA33 | 4-2369-75370 | Plug Cord [CN1 | 1 |
| CA34 | ⚠ 4-2432-00502 | Power Cord | 1 |
| CA35 | 131-2-6111-22900 | Bushing | 1 |
| CA36 | 141-2-7519-75700 | Cam | 1 |
| CA37 | 141-2-3169-30000 | Guide Frame | 1 |
| CA38 | 141-2-4459-40100 | Cushion | 3 |
| CA39 | 141-2-8519-01800 | Spring Rewind Roller | 1 |
| CA40 | 134-0-5011-04300 | Motor Assy (Arm) [M2] | 1 |
| CA41 | 141-2-4459-39500 | Cushion | 1 |
| CA42 | 141-2-5519-65000 | Worm Wheel | 1 |
| CA43 | 134-2-4106-27002 | Shaft | 1 |
| CA44 | 141-2-4219-40600 | Screw | 2 |
| CA45 | 141-2-3519-75000 | Plate | 1 |
| CA46 | 141-2-5649-25000 | Belt | 1 |
| CA47 | 141-0-5519-10301 | Worm Assy | 1 |
| CA48 | 141-2-5739-07600 | Support Shaft | 1 |
| CA49 | 141-2-5289-01700 | Rail | 1 |
| CA50 | 131-0-3020-11000 | Pully Assy | 2 |
| CA51 | 131-2-4112-10200 | Rope | 1 |
| CA52 | 141-2-8549-37600 | Spring | 1 |
| CA53 | 131-2-4202-11600 | Nut | 1 |
| CA54 | 141-2-4569-04300 | Washer | 1 |
| CA55 | 141-0-3129-02500 | Unit Plate Assy | 1 |
| CA56 | 141-0-7439-19400 | Lifter Arm Assy | 1 |
| CA57 | 141-2-5729-22700 | Boss | 1 |
| CA58 | 141-2-8549-32600 | Spring | 1 |
| CA59 | 141-2-8559-14700 | Spring | 1 |
| CA60 | 4-2649-70790 | Solenoid [SL1] | 1 |
| CA61 | 141-2-1149-50700 | Cover Plate | 1 |
| CA62 | 141-0-6419-02400 | Pick-up Assy | 1 |
| CA62-1 | 141-2-3519-82100 | Cover | 1 |
| CA62-2 | 141-0-6419-02500 | Tone Arm Assy | 1 |
| 1 | 141-2-6419-00500 | Tone Arm | 1 |
| 2 | 4-1579-70190 | Cartridge (MG-103S) | 1 |
| CA62-3 | 411 030 7202 | SCR BIN 2X6 | 1 |
| CA62-4 | 141-0-1939-16950 | PC Assy | 1 |
| CA62-5 | 4-1579-70200 | Stylus (ST-103SD) | 1 |
| CA62-6 | 141-2-6459-00600 | Retainer Needle | 1 |
| CA63 | 141-2-1259-09300 | Plate Bottom | 1 |
| CA64 | 131-2-4220-10507 | Ring Snap | 1 |
| CA65 | 141-2-8549-26300 | Spring APS | 1 |
| CA66 | 131-2-3608-12404 | Cramp Wire | 1 |
| CA67 | 131-2-7104-00101 | Plate Pad Switch | 1 |
| CA68 | 141-2-4459-41200 | Cushion | 1 |
| CA69 | ⚠ 4-2312-02650 | Switch Slide (Voltage Selector) [S901] | 1 |
| CX1 | 411 021 6405 | SCR S-TPG BIN 3X8 | 2 |
| CX2 | 411 004 6408 | NUT HEX 4 | 1 |
| CX3 | 411 008 1607 | WASHER SPR 4 | 1 |
| CX4 | 411 024 2404 | SCR S-TPG PAN 4X25 | 1 |
| CX5 | 131-2-4201-20300 | Screw | 2 |
| CX6 | 131-2-4201-25205 | Screw | 1 |
| PCB1 | 141-0-1939-20291 | Control P.C.B. Assy | 1 |
| PCB2 | 141-0-1939-15390 | LED P.C.B. Assy | 1 |
| PCB3 | 141-0-1939-18270 | Sensor P.C.B. Assy | 1 |
| PCB4 | 141-0-1939-15410 | Pulse P.C.B. Assy | 1 |
| PCB5 | 141-0-1939-15360 | Power Switch P.C.B. Assy | 1 |
| PCB6 | 141-0-1939-20311 | Remote P.C.B. Assy | 1 |
| PCB7 | 141-0-1939-15380 | Approach P.C.B. Assy | 1 |
| PCB8 | 141-0-1939-20300 | Sub Control P.C.B. Assy | 1 |
| PCB9 | 141-0-1939-17550 | Primaly P.C.B. Assy | 1 |

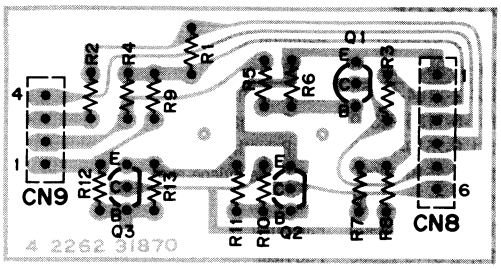
**NOTES:**

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

## SENSOR P.C.BOARD
(BOTTOM VIEW)

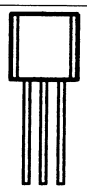
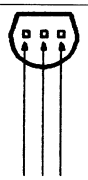
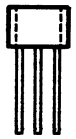



## SUB CONTROL P.C.BOARD
(BOTTOM VIEW)

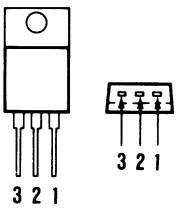



| TRANSISTOR DC VOLTAGES | | | | |
|---|---|---|---|---|
| SYMBOL No. | DEVICE | B | C | E |
| Q1 | 2SC536 | 0.7V | 0V | 0V |
| Q2 | 2SC536 | 0V | 12.1V | 0V |
| Q3 | 2SC536 | 0.7V | 0V | 0V |

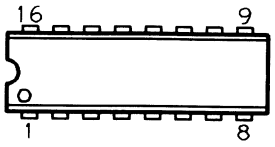
## IC & TRANSISTOR LEAD IDENTIFICATION

| TRANSISTOR | FRONT VIEW | BOTTOM VIEW |
|---|---|---|
| 2SA 608<br>2SA 984<br>2SC 536<br>2SC 2274 |  |  |
| 2SD 1012 |  | |
| **TERMINAL NAME** | | |
| B → BASE<br>C → COLLECTOR<br>E → EMITTER | | |

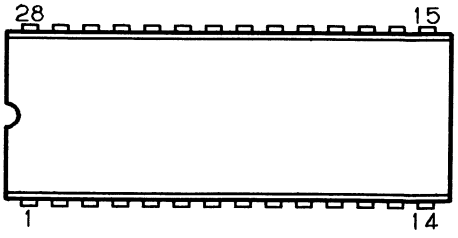
### NJM7812/NJM7912 FRONT/BOTTOM VIEWS



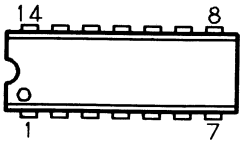

### MN4049B TOP VIEW

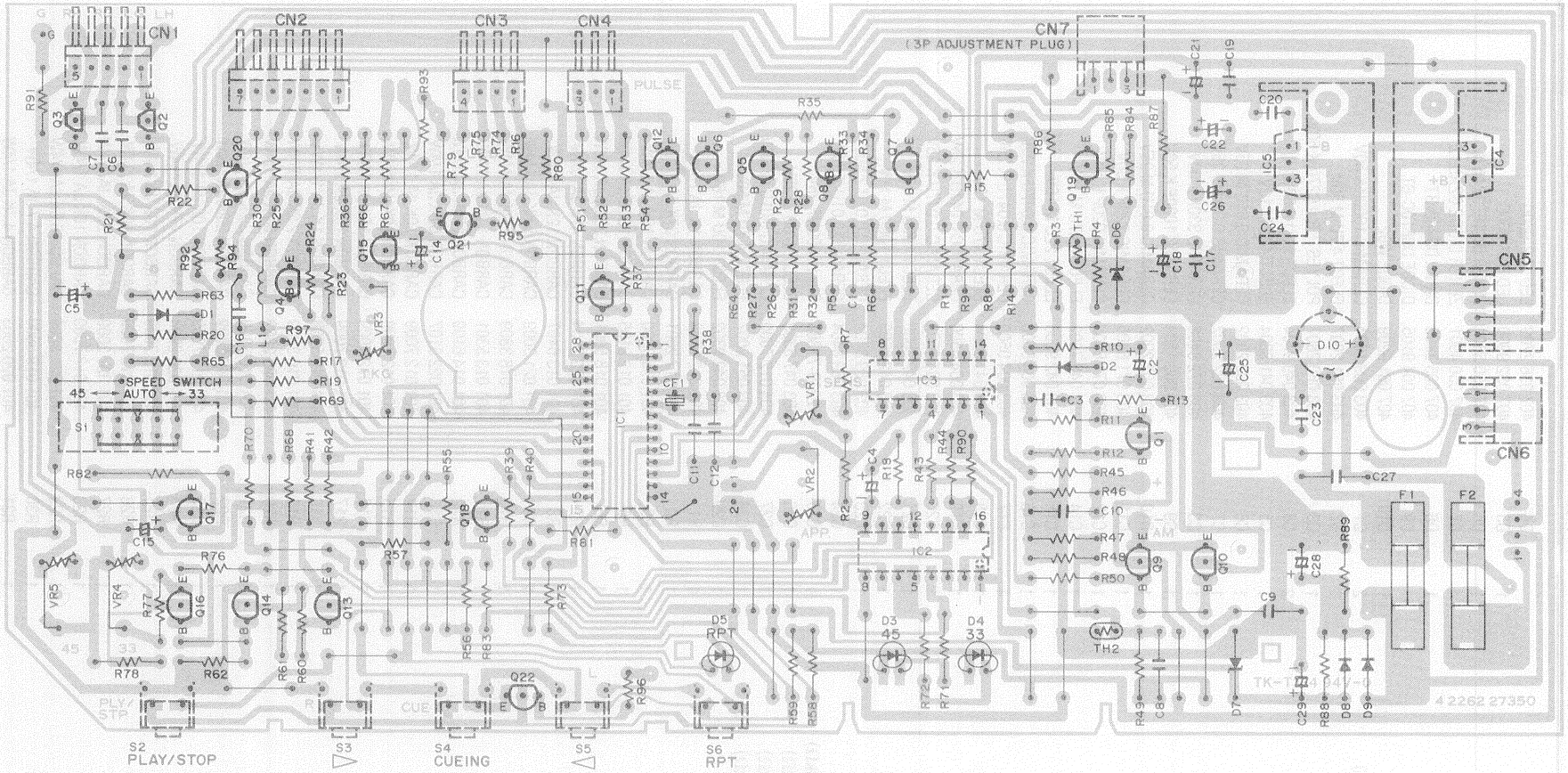



### LM6416E-1903 TOP VIEW




### LA6324 TOP VIEW






## CONTROL P.C.BOARD
(BOTTOM VIEW)

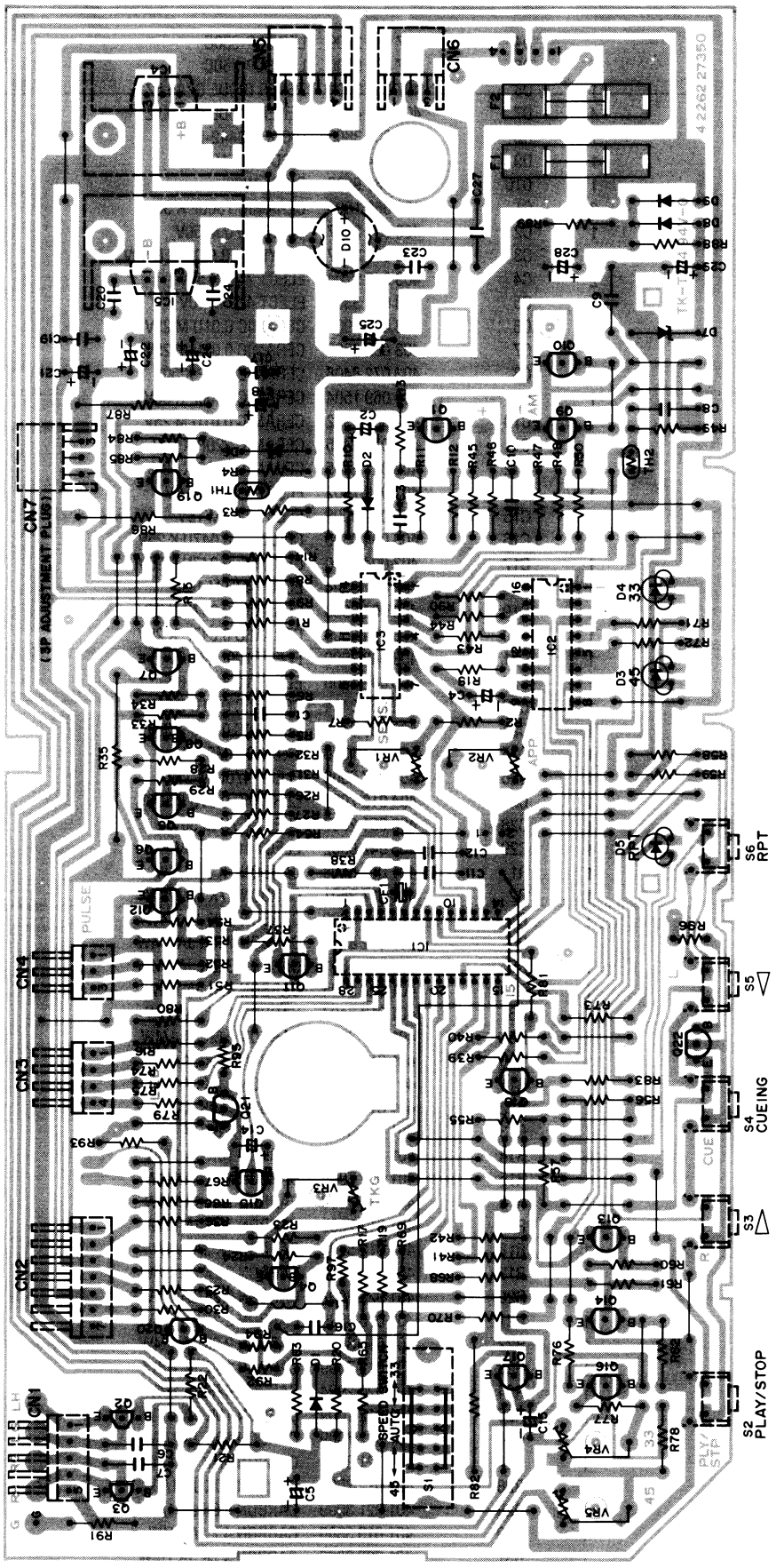
**IC PIN NUMBERS DC VOLTAGES**

| SYMBOL No. | DEVICE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IC1 | LM6416E | 0.2V | 6.4V | 0V | 0V | 2.7V | 2.2V | 12.0V | 4.6V | 8.2V | 8.4V | 0.1V | 0.1V | 0V | 0V | 12.0V | 12.0V | 12.0V | 14.3V | 12.0V | 5.2V |
| | | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | | | | | | | | | | | | |
| | | 12.0V | 12.0V | 12.0V | 12.0V | 12.6V | 14.7V | 12.0V | 12.0V | | | | | | | | | | | | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| IC2 | MN4049B | 12.0V | 0V | 12.0V | 11.9V | 0.2V | 0.2V | 12.0V | 0V | 0V | 12.0V | 12.0V | 0V | – | 12.0V | 0V | – | | | | |
| IC3 | LA6324 | −0.8V | 0V | 0V | 12.0V | – | – | – | 7.2V | 0.7V | 0.7V | −12.2V | 3.8V | 7.1V | −11.6V | | | | | | |
| IC4 | NJM7812 | 12.0V | 0V | 17.0V | | | | | | | | | | | | | | | | | |
| IC5 | NJM7912 | −12.2V | −18.0V | 0V | | | | | | | | | | | | | | | | | |

**TRANSISTOR DC VOLTAGES**

| SYMBOL No. | DEVICE | B | C | E | SYMBOL No. | DEVICE | B | C | E |
|---|---|---|---|---|---|---|---|---|---|
| Q4 | 2SC536 | 0.6V | 0.1V | 0V | Q14 | 2SC536 | 0V | 12.1V | 0V |
| Q5 | 2SA608 | 12.0V | −12.2V | 12.0V | Q15 | 2SC536 | 0V | 12.1V | 0V |
| Q6 | 2SC2274 | −12.2V | 0V | −12.2V | Q16 | 2SC536 | 1.9V | 1.2V | 1.2V |
| Q7 | 2SC2274 | −12.2V | 0V | −12.2V | Q17 | 2SC2274 | 0.1V | 12.0V | 0.9V |
| Q8 | 2SA608 | 11.8V | −12.2V | 12.0V | Q18 | 2SC536 | 0.7V | 0.1V | 0V |
| Q9 | 2SC2274 | −0.7V | 12.0V | −0.1V | Q19 | 2SC2274 | 5.9V | 10.9V | 5.2V |
| Q10 | 2SA984 | −0.7V | −12.2V | −0.1V | Q20 | 2SC536 | 0.7V | 0V | 0V |
| Q11 | 2SC536 | 0.6V | 0V | 0V | Q21 | 2SA608 | 12.1V | 4.8V | 0V |
| Q12 | 2SC536 | 0.7V | 0V | 0V | Q22 | 2SA608 | 12.1V | 8.5V | 12.1V |
| Q13 | 2SA608 | 12.1V | 8.3V | 12.1V | | | | | |

# CONTROL P.C.BOARD
## (BOTTOM VIEW)




**TRANSISTOR DC VOLTAGES**

| SYMBOL No. | DEVICE | B | C | E |
|---|---|---|---|---|
| Q4 | 2SC536 | 0.6V | 0.1V | 0V |
| Q5 | 2SA608 | 12.0V | −12.2V | 12.0V |
| Q6 | 2SC2274 | −12.2V | 0V | −12.2V |
| Q7 | 2SC2274 | −12.2V | 0V | −12.2V |
| Q8 | 2SA608 | 11.8V | −12.2V | 12.0V |
| Q9 | 2SC2274 | −0.7V | 12.0V | −0.1V |
| Q10 | 2SA984 | −0.7V | −12.2V | −0.1V |
| Q11 | 2SC536 | 0.6V | 0V | 0V |
| Q12 | 2SC536 | 0.7V | 0V | 0V |
| Q13 | 2SA608 | 12.1V | 8.3V | 12.1V |
| Q14 | 2SC536 | 0V | 12.1V | 0V |
| Q15 | 2SC536 | 0V | 12.1V | 0V |
| Q16 | 2SC536 | 1.9V | 1.2V | 1.2V |
| Q17 | 2SC2274 | 0.1V | 12.0V | 0.9V |
| Q18 | 2SC536 | 0.7V | 0.1V | 0V |
| Q19 | 2SC2274 | 5.9V | 10.9V | 5.2V |
| Q20 | 2SC536 | 0.7V | 0V | 0V |
| Q21 | 2SA608 | 12.1V | 4.8V | 0V |
| Q22 | 2SA608 | 12.1V | 8.5V | 12.1V |

**IC PIN NUMBERS DC VOLTAGES**

| SYMBOL No. | DEVICE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IC1 | LM6416E | 0.2V | 6.4V | 0V | 0V | 2.7V | 2.2V | 12.0V | 4.6V | 8.2V | 8.4V | 0.1V | 0.1V | 0V | 0V | 12.0V | 12.0V | 12.0V | 14.3V | 12.0V | 5.2V |
| | | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | | | | | | | | | | | | |
| | | 12.0V | 12.0V | 12.0V | 12.0V | 12.6V | 14.7V | 12.0V | 12.0V | | | | | | | | | | | | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| IC2 | MN4049B | 12.0V | 0V | 12.0V | 11.9V | 0.2V | 0.2V | 12.0V | 0V | 0V | 12.0V | 12.0V | 0V | − | 12.0V | 0V | − | | | | |
| IC3 | LA6324 | −0.8V | 0V | 0V | 12.0V | − | − | − | 7.2V | 0.7V | 0.7V | −12.2V | 3.8V | 7.1V | −11.6V | | | | | | |
| IC4 | NJM7812 | 12.0V | 0V | 17.0V | | | | | | | | | | | | | | | | | |
| IC5 | NJM7912 | −12.2V | −18.0V | 0V | | | | | | | | | | | | | | | | | |

# P.C.BOARD PARTS LIST

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| | **CONTROL P.C.B. ASSY** | | |
| PCB1 | 141-0-1939-20291 | Control P.C.B. Assy | 1 |
| | 4-2259-70780 | CSB 800K | 1 |
| | ⚠ 4-2352-00200 | Fuse Holder | 4 |
| | 4-2359-79039 | Connector 1P Assy | 1 |
| | 131-2-9800-01010 | Jumper | 1 |
| | 131-2-9800-01071 | Jumper | 1 |
| | 131-2-6201-35500 | Plate Heat Sink (for IC4,IC5) | 2 |
| | 131-2-7103-53200 | Label (Fuse) | 1 |
| | 141-2-3519-79200 | LED Spacer | 1 |
| | 411 002 8503 | SCR PAN 3X6 | 2 |
| CN1 | 4-2369-22740 | Plug 5P | 1 |
| CN2 | 4-2369-22750 | Plug 7P | 1 |
| CN3 | 4-2369-22780 | Plug 4P | 1 |
| CN4 | 4-2362-00040 | Plug 3P | 1 |
| CN5 | 4-2369-73673 | Plug 4P | 1 |
| CN6 | 4-2369-73670 | Plug 3P | 1 |
| CN7 | 4-2369-73670 | Plug 3P | 1 |
| CN8 | 4-2352-02177 | Connector 6P Assy | 1 |
| F1 | ⚠ 4-2349-20400 | Fuse T630mA | 1 |
| F2 | ⚠ 4-2349-20400 | Fuse T630mA | 1 |
| L001 | 4-2532-00540 | Choke Coil 47UH | 1 |
| S1 | 4-2319-78290 | Switch Slide (Speed) | 1 |
| S2 | 4-2319-75790 | Touch Switch (Play/Stop) | 1 |
| S3 | 4-2319-75790 | Touch Switch ( ▷ ) | 1 |
| S4 | 4-2319-75790 | Touch Switch (Cue) | 1 |
| S5 | 4-2319-75790 | Touch Switch ( ◁ ) | 1 |
| S6 | 4-2319-75790 | Touch Switch (Repeat) | 1 |
| TH1 | 407 015 0504 | THERMISTOR SDT-500 | 1 |
| TH2 | 407 015 0504 | THERMISTOR SDT-500 | 1 |
| VR1 | 4-2222-01020 | Semi Fixed Volume (B-200kΩ) | 1 |
| VR2 | 4-2222-01010 | Semi Fixed Volume (B-50kΩ) | 1 |
| VR3 | 4-2222-01040 | Semi Fixed Volume (B-20kΩ) | 1 |
| VR4 | 4-2222-01040 | Semi Fixed Volume (B-20kΩ) | 1 |
| VR5 | 4-2222-01400 | Potentiometer (B-10kΩ) | 1 |
| IC1 | 409 025 5104 | IC LM6416E-1903 | 1 |
| IC2 | 409 069 8901 | IC MN4049B | 1 |
| or | 409 033 6902 | IC MSM4049RS | 1 |
| IC3 | 409 018 3308 | IC LA6324 | 1 |
| IC4 | 409 040 0900 | IC NJM7812A | 1 |
| IC5 | 409 070 6507 | IC NJM7912A | 1 |
| Q1 | 405 019 2708 | TR 2SC536-F-NP | 1 |
| Q2 | 405 021 0808 | TR 2SD1012-H | 1 |
| Q3 | 405 021 0808 | TR 2SD1012-H | 1 |
| Q4 | 405 019 2708 | TR 2SC536-F-NP | 1 |
| Q5 | 405 004 4502 | TR 2SA608-F-NP | 1 |
| Q6 | 405 013 7006 | TR 2SC2274-F | 1 |
| Q7 | 405 013 7006 | TR 2SC2274-F | 1 |
| Q8 | 405 004 4502 | TR 2SA608-F-NP | 1 |
| Q9 | 405 013 7006 | TR 2SC2274-F | 1 |
| Q010 | 405 006 6702 | TR 2SA984-F | 1 |
| Q011 | 405 019 3804 | TR 2SC536-G-NP | 1 |
| Q012 | 405 019 2708 | TR 2SC536-F-NP | 1 |
| Q013 | 405 004 4502 | TR 2SA608-F-NP | 1 |
| Q014 | 405 019 2708 | TR 2SC536-F-NP | 1 |
| Q015 | 405 019 2708 | TR 2SC536-F-NP | 1 |
| Q016 | 405 019 3804 | TR 2SC536-G-NP | 1 |
| Q017 | 405 013 7006 | TR 2SC2274-F | 1 |
| Q018 | 405 019 2708 | TR 2SC536-F-NP | 1 |
| Q019 | 405 013 7006 | TR 2SC2274-F | 1 |
| Q020 | 405 019 2708 | TR 2SC536-F-NP | 1 |
| Q021 | 405 004 4502 | TR 2SA608-F-NP | 1 |
| Q022 | 405 004 4502 | TR 2SA608-F-NP | 1 |
| D1 | 407 005 3805 | DIODE DS442-BT | 1 |
| D2 | 407 005 3805 | DIODE DS442-BT | 1 |
| D3 | 407 036 2709 | LED SLP-960C | 1 |
| D4 | 407 036 2709 | LED SLP-960C | 1 |
| D5 | 407 032 9900 | LED SLP-360C | 1 |
| D6 | 407 050 5601 | ZENER DIODE GZA5.6Z | 1 |
| D7 | 407 050 4901 | ZENER DIODE GZA5.1Z | 1 |
| D8 | 407 005 3805 | DIODE DS442-BT | 1 |
| D9 | 407 004 9105 | DIODE DSF10C-BT | 1 |
| D10 | 407 061 9209 | DIODE W02 | 1 |
| C1 | 403 069 1504 | CERAMIC 1000P K 50V | 1 |
| C2 | 403 051 2007 | ELECT 4.7U M 50V | 1 |
| C3 | 403 060 2807 | POLYESTER 0.027U K 50V | 1 |
| C4 | 403 049 9704 | ELECT 2.2U K 50V | 1 |
| C5 | 403 041 3304 | ELECT 47U M 10V | 1 |
| C6 | 403 002 2902 | CERAMIC 0.01U M 25V | 1 |
| C7 | 403 002 2902 | CERAMIC 0.01U M 25V | 1 |
| C8 | 403 072 8408 | CERAMIC 330P K 50V | 1 |
| C9 | 403 069 1504 | CERAMIC 1000P K 50V | 1 |
| C10 | 403 002 2902 | CERAMIC 0.01U M 25V | 1 |
| C11 | 403 071 6405 | CERAMIC 220P K 50V | 1 |
| C12 | 403 071 6405 | CERAMIC 220P K 50V | 1 |
| C14 | 403 048 7602 | ELECT 0.47U M 50V | 1 |
| C15 | 403 042 9008 | ELECT 22U M 16V | 1 |
| C16 | 403 004 0500 | CERAMIC 0.047U K 25V | 1 |
| C17 | 403 004 0500 | CERAMIC 0.047U K 25V | 1 |
| C18 | 403 041 3304 | ELECT 47U M 10V | 1 |
| C19 | 403 004 0500 | CERAMIC 0.047U K 25V | 1 |
| C20 | 403 004 0500 | CERAMIC 0.047U K 25V | 1 |
| C21 | 403 042 3600 | ELECT 100U M 16V | 1 |
| C22 | 403 042 3600 | ELECT 100U M 16V | 1 |
| C23 | 403 069 8404 | CERAMIC 0.01U Z 50V | 1 |
| C24 | 403 069 8404 | CERAMIC 0.01U Z 50V | 1 |
| C25 | 4-2239-71360 | Elect 1000MF 25V | 1 |
| C26 | 403 047 6309 | ELECT 470U M 25V | 1 |
| C27 | 404 012 7000 | CERAMIC 0.01U P 500V | 1 |
| C28 | 403 051 2007 | ELECT 4.7U M 50V | 1 |
| C29 | 403 042 0302 | ELECT 10U M 16V | 1 |
| R1 | 401 012 5708 | CARBON 1K JA 1/4W | 1 |
| R2 | 401 017 2801 | CARBON 27K JA 1/4W | 1 |
| R3 | 401 015 3800 | CARBON 18K JA 1/4W | 1 |
| R5 | 401 012 8105 | CARBON 100K JA 1/4W | 1 |
| R6 | 401 018 5801 | CARBON 330K JA 1/4W | 1 |
| R7 | 401 020 2904 | CARBON 47K JA 1/4W | 1 |
| R8 | 401 013 6407 | CARBON 12K JA 1/4W | 1 |
| R9 | 401 021 3009 | CARBON 5.6K JA 1/4W | 1 |
| R10 | 401 016 3809 | CARBON 2.2K JA 1/4W | 1 |
| R11 | 401 013 5301 | CARBON 1.2K JA 1/4W | 1 |
| R12 | 401 014 6109 | CARBON 150K JA 1/4W | 1 |
| R13 | 401 022 3107 | CARBON 6.8K JA 1/4W | 1 |
| R14 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R15 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R16 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R17 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R18 | 401 012 5708 | CARBON 1K JA 1/4W | 1 |
| R19 | 401 016 3809 | CARBON 2.2K JA 1/4W | 1 |
| R20 | 401 023 2802 | CARBON 8.2K JA 1/4W | 1 |
| R21 | 401 016 3809 | CARBON 2.2K JA 1/4W | 1 |
| R22 | 401 016 3809 | CARBON 2.2K JA 1/4W | 1 |
| R23 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R24 | 401 020 2904 | CARBON 47K JA 1/4W | 1 |
| R25 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R26 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R27 | 401 021 3009 | CARBON 5.6K JA 1/4W | 1 |
| R28 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R29 | 401 021 3009 | CARBON 5.6K JA 1/4W | 1 |
| R30 | 401 019 5800 | CARBON 4.7 JA 1/4W | 1 |
| R31 | 401 020 2003 | CARBON 4.7K JA 1/4W | 1 |
| R32 | 401 021 3009 | CARBON 5.6K JA 1/4W | 1 |

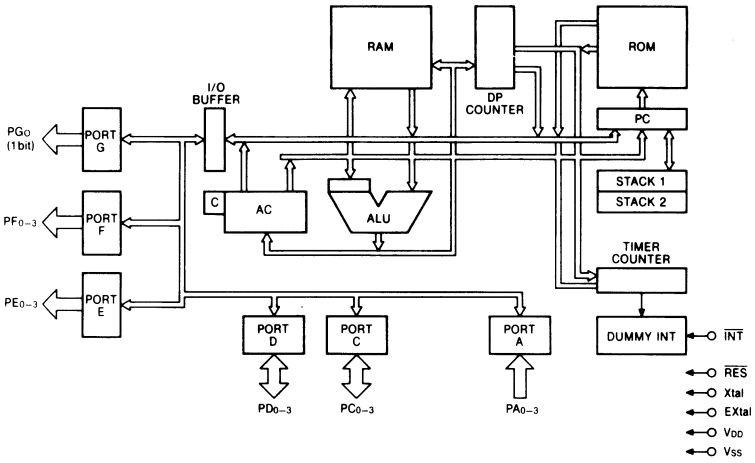
# P.C.BOARD PARTS LIST (Continued)

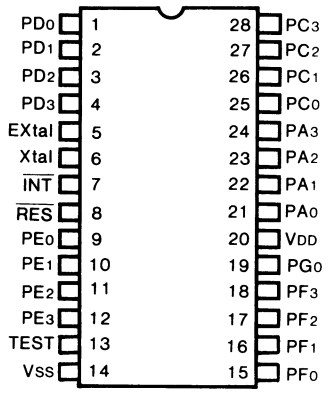
| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| R33 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R34 | 401 021 3009 | CARBON 5.6K JA 1/4W | 1 |
| R35 | 401 068 7107 | OXIDE-MT 56 JA 2W | 1 |
| R36 | 401 016 3809 | CARBON 2.2K JA 1/4W | 1 |
| R37 | 401 018 5801 | CARBON 330K JA 1/4W | 1 |
| R38 | 401 012 9300 | CARBON 1M JA 1/4W | 1 |
| R39 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R40 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R41 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R42 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R43 | 401 019 3004 | CARBON 39K JA 1/4W | 1 |
| R44 | 401 022 3107 | CARBON 6.8K JA 1/4W | 1 |
| R45 | 401 014 4105 | CARBON 1.5K JA 1/4W | 1 |
| R46 | 401 017 7608 | CARBON 3.9 JA 1/4W | 1 |
| R47 | 401 020 0801 | CARBON 470 JA 1/4W | 1 |
| R48 | 401 020 0801 | CARBON 470 JA 1/4W | 1 |
| R49 | 401 012 5708 | CARBON 1K JA 1/4W | 1 |
| R50 | 401 016 3809 | CARBON 2.2K JA 1/4W | 1 |
| R51 | 401 019 5800 | CARBON 4.7 JA 1/4W | 1 |
| R52 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R53 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R54 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R55 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R56 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R57 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R58 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R59 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R60 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R61 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R62 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R63 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R64 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R65 | 401 012 5708 | CARBON 1K JA 1/4W | 1 |
| R66 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R67 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R68 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R69 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R70 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R71 | 401 013 5301 | CARBON 1.2K JA 1/4W | 1 |
| R72 | 401 013 5301 | CARBON 1.2K JA 1/4W | 1 |
| R73 | 401 022 1905 | CARBON 680 JA 1/4W | 1 |
| R74 | 401 012 5708 | CARBON 1K JA 1/4W | 1 |
| R75 | 401 023 1706 | CARBON 820 JA 1/4W | 1 |
| R76 | 401 016 4806 | CARBON 22K JA 1/4W | 1 |
| R77 | 401 013 6407 | CARBON 12K JA 1/4W | 1 |
| R78 | 401 014 5201 | CARBON 15K JA 1/4W | 1 |
| R79 | 401 012 5708 | CARBON 1K JA 1/4W | 1 |
| R80 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R81 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R82 | 401 062 1408 | OXIDE-MT 470 JA 1W | 1 |
| R83 | 401 012 7009 | CARBON 10K JA 1/4W | 1 |
| R84 | 401 016 2604 | CARBON 220 JA 1/4W | 1 |
| R85 | 401 022 1905 | CARBON 680 JA 1/4W | 1 |
| R86 | 401 061 5506 | OXIDE-MT 39 JA 1W | 1 |
| R87 | 401 062 1408 | OXIDE-MT 470 JA 1W | 1 |
| R88 | 401 020 2904 | CARBON 47K JA 1/4W | 1 |
| R89 | 401 020 2003 | CARBON 4.7K JA 1/4W | 1 |
| R90 | 401 015 3800 | CARBON 18K JA 1/4W | 1 |
| R91 | 401 022 0809 | CARBON 68 JA 1/4W | 1 |
| R92 | 401 024 7400 | CARBON 10K JA 1/6W | 1 |
| R93 | 401 019 1901 | CARBON 3.9K JA 1/4W | 1 |
| R94 | 401 026 7002 | CARBON 3.9K JA 1/6W | 1 |
| R95 | 401 025 7805 | CARBON 2.2K JA 1/6W | 1 |
| R96 | 401 024 7400 | CARBON 10K JA 1/6W | 1 |
| R97 | 401 025 7409 | CARBON 220 JA 1/6W | 1 |

| Ref. No. | Part No. | Description | Q'ty |
|---|---|---|---|
| | **LED P.C.B. ASSY** | | |
| PCB2 | 141-0-1939-15390 | LED P.C.B. Assy | 1 |
| | 4-2359-79184 | Connector 4P Assy | 1 |
| D1 | 407 063 2604 | LED SLR-34VC3-N,P | 1 |
| D2 | 407 063 2604 | LED SLR-34VC3-N,P | 1 |
| D3 | 407 063 2604 | LED SLR-34VC3-N,P | 1 |
| D4 | 407 063 2604 | LED SLR-34VC3-N,P | 1 |
| | **SENSOR P.C.B. ASSY** | | |
| PCB3 | 141-0-1939-18270 | Sensor P.C.B. Assy | 1 |
| | 4-2359-79022 | Connector 7P Assy | 1 |
| | 141-2-3519-76200 | Spacer | 1 |
| VR1 | 4-2229-75541 | Potentiometer (B-2kΩ) | 1 |
| Q1 | 407 002 5802 | PC SPI-206-10-SB | 1 |
| Q2 | 407 063 5407 | PHOTO DIODE TPS-613 | 1 |
| D1 | 407 005 1603 | DIODE DS135D | 1 |
| R1 | 401 021 1906 | CARBON 560 JA 1/4W | 1 |
| R2 | 401 056 3609 | OXIDE-MT 470 JA 1/2W | 1 |
| | **PULSE P.C.B. ASSY** | | |
| PCB4 | 141-0-1939-15410 | Pulse P.C.B. Assy | 1 |
| | 4-2359-79253 | Connector 3P Assy | 1 |
| Q1 | 407 060 7206 | PHOTO COUPLE GP-IS04 | 1 |
| R1 | 401 021 1906 | CARBON 560 JA 1/4W | 1 |
| | **POWER SWITCH P.C.B. ASSY** | | |
| PCB5 | 141-0-1939-15360 | Power Switch P.C.B. Assy | 1 |
| S7 | ⚠ 4-2319-78930 | Push Switch (Power) | 1 |
| | **REMOTE P.C.B. ASSY** | | |
| PCB6 | 141-0-1939-20311 | Remote P.C.B. Assy | 1 |
| CN9 | 4-2352-02347 | Connector 4P Assy | 1 |
| J1 | 4-2369-75890 | Plug 3P | 1 |
| | **APPLOACH P.C.B. ASSY** | | |
| PCB7 | 141-0-1939-15380 | Approach P.C.B. Assy | 1 |
| VR1 | 4-2229-74810 | Volume (B-50kΩ) | 1 |
| R1 | 401 012 5708 | CARBON 1K JA 1/4W | 1 |
| R2 | 401 012 5708 | CARBON 1K JA 1/4W | 1 |
| | **SUB CONTROL P.C.B. ASSY** | | |
| PCB8 | 141-0-1939-20300 | Sub Control P.C.B. Assy | 1 |
| CN9 | 4-2369-73140 | Plug 4P | 1 |
| CN8 | 4-2369-73160 | Plug 6P | 1 |
| Q1 | 405 019 2708 | TR 2SC536-F-NP | 1 |
| Q2 | 405 019 2708 | TR 2SC536-F-NP | 1 |
| Q3 | 405 019 2708 | TR 2SC536-F-NP | 1 |
| R1 | 401 027 5502 | CARBON 6.8K JA 1/6W | 1 |
| R2 | 401 025 7409 | CARBON 220 JA 1/6W | 1 |
| R3 | 401 024 7400 | CARBON 10K JA 1/6W | 1 |
| R4 | 401 027 5502 | CARBON 6.8K JA 1/6W | 1 |
| R5 | 401 026 7002 | CARBON 3.9K JA 1/6W | 1 |
| R6 | 401 026 7002 | CARBON 3.9K JA 1/6W | 1 |
| R7 | 401 024 7400 | CARBON 10K JA 1/6W | 1 |
| R8 | 401 024 7400 | CARBON 10K JA 1/6W | 1 |
| R9 | 401 027 5502 | CARBON 6.8K JA 1/6W | 1 |
| R10 | 401 024 7400 | CARBON 10K JA 1/6W | 1 |
| R11 | 401 024 7400 | CARBON 10K JA 1/6W | 1 |
| R12 | 401 026 7002 | CARBON 3.9K JA 1/6W | 1 |
| R13 | 401 026 7002 | CARBON 3.9K JA 1/6W | 1 |
| | **PRIMALY P.C.B. ASSY** | | |
| PCB9 | 141-0-1939-17550 | Primaly P.C.B. Assy | 1 |
| | 4-2372-00830 | EC Terminal 1P | 2 |
| | 111-2-6220-11100 | Wire Wrap Terminal | 2 |

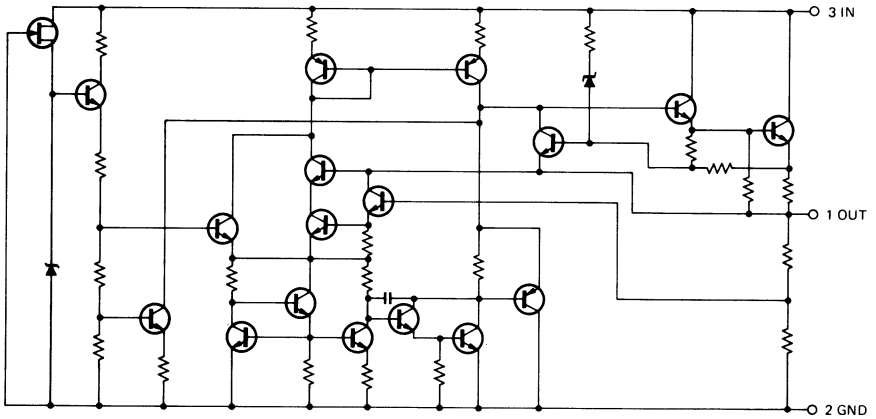
# IC BLOCK DIAGRAM

## CONTROL IC LM6416E

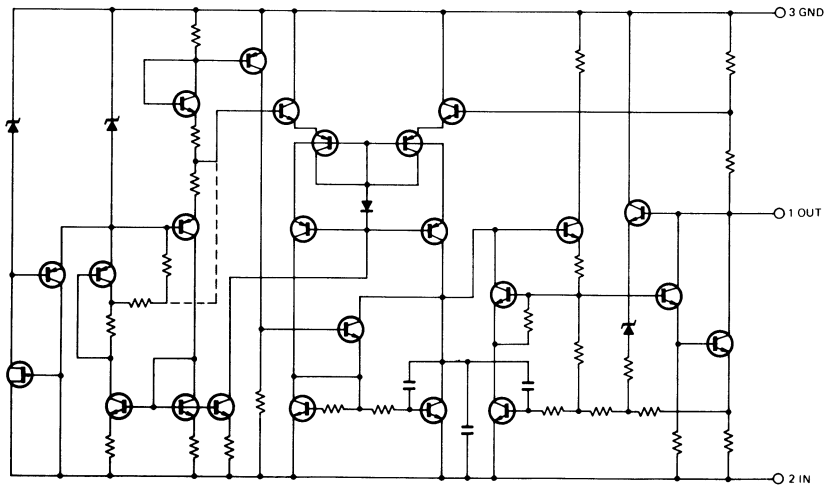


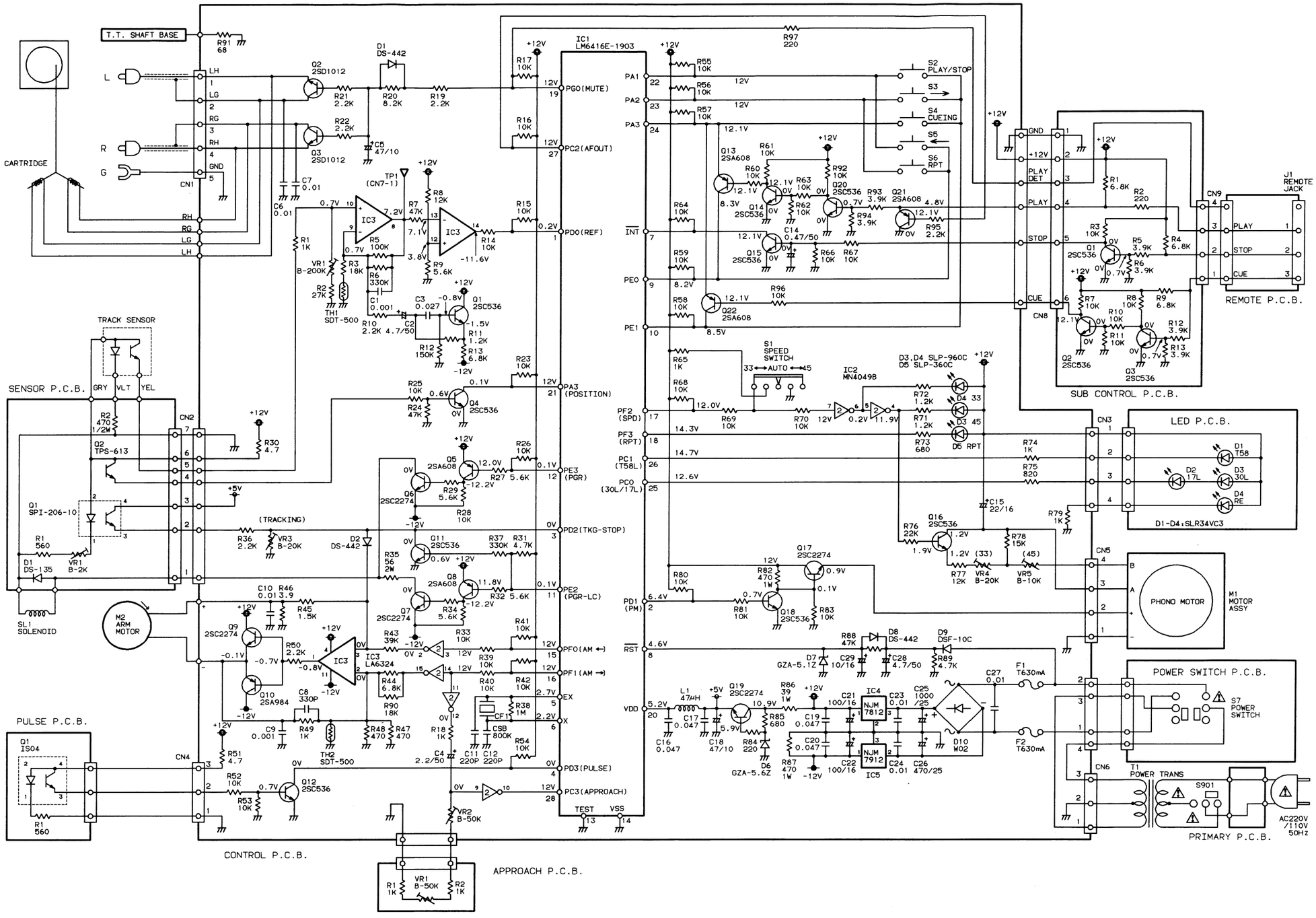

## VOLTAGE REGULATOR IC NJM7812




## VOLTAGE REGULATOR IC NJM7912



# SCHEMATIC DIAGRAM




| No. | Name | Position |
|---|---|---|
| S1 | SPEED Switch | AUTO |
| S2 | PLAY/STOP Switch | OFF |
| S3 | (▷) Switch | OFF |
| S4 | CUEING Switch | OFF |
| S5 | (◁) Switch | OFF |
| S6 | REPEAT Switch | OFF |
| S7 | POWER Switch | OFF |
| S901 | Voltage Selector | 220V |



## PRODUCT SAFETY NOTICE

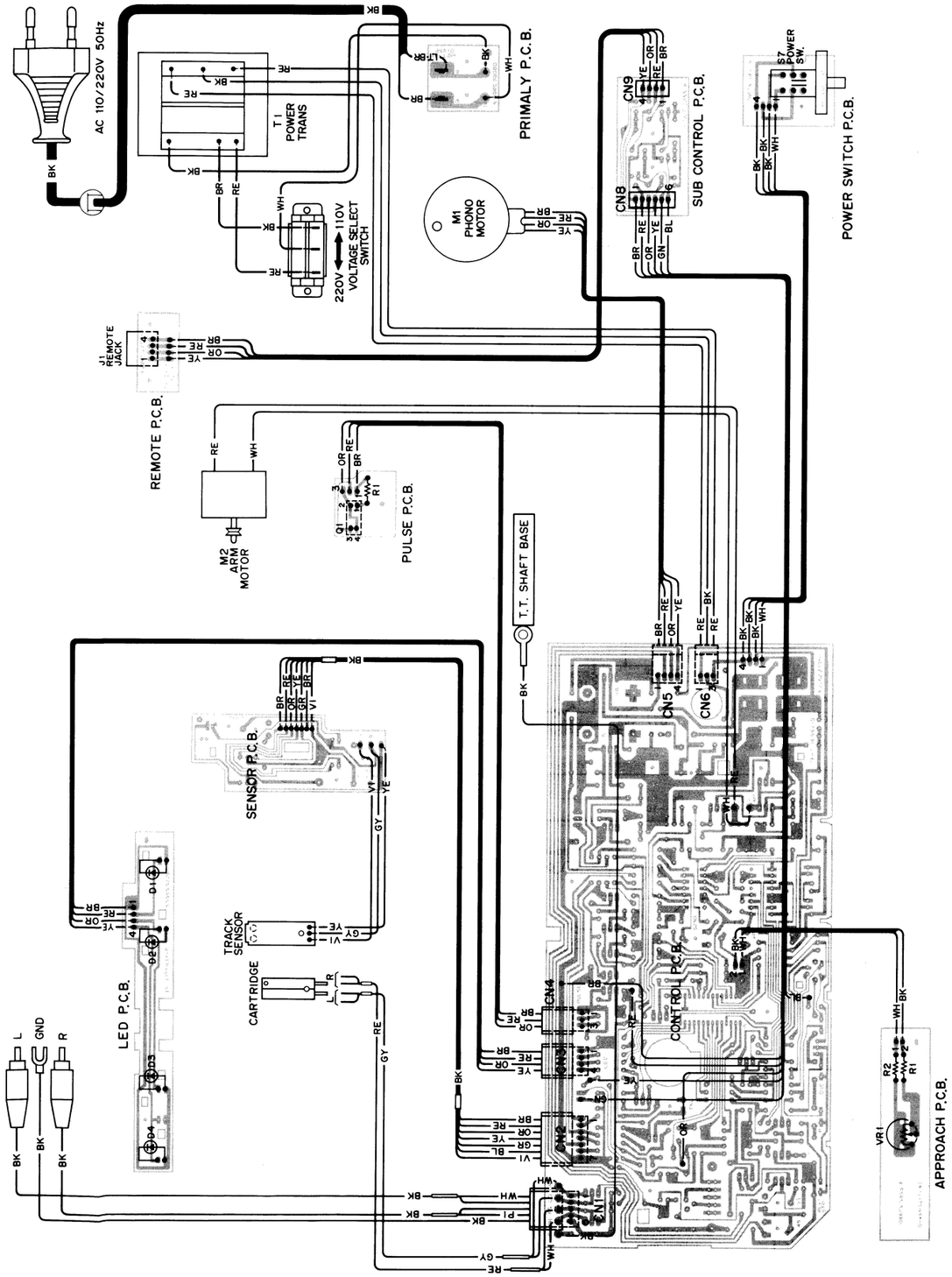
Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual.
Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

**NOTES:**

1. All resistors values are indicated in "ohm" (K=$10^3$, M=$10^6$).
2. All capacitors values are indicated in "μF" (P=$10^{-12}$).
3. All voltages indicated on the schematics are measured under the following conditions.
   a. Use a V.T.V.M.
   b. All voltages ±10 % with respect to chassis ground
   c. No signals at input terminals
   d. AC input at 220 volts 50 Hz
4. This is a basic schematic diagram.

Because Fisher products are subject to continuous improvement, Fisher Corporation reserves the right to make any changes or modifications without notice.

## POINT TO POINT WIRING DIAGRAM







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Sie sparen so wertvolle Zeit. Vielen Dank.

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